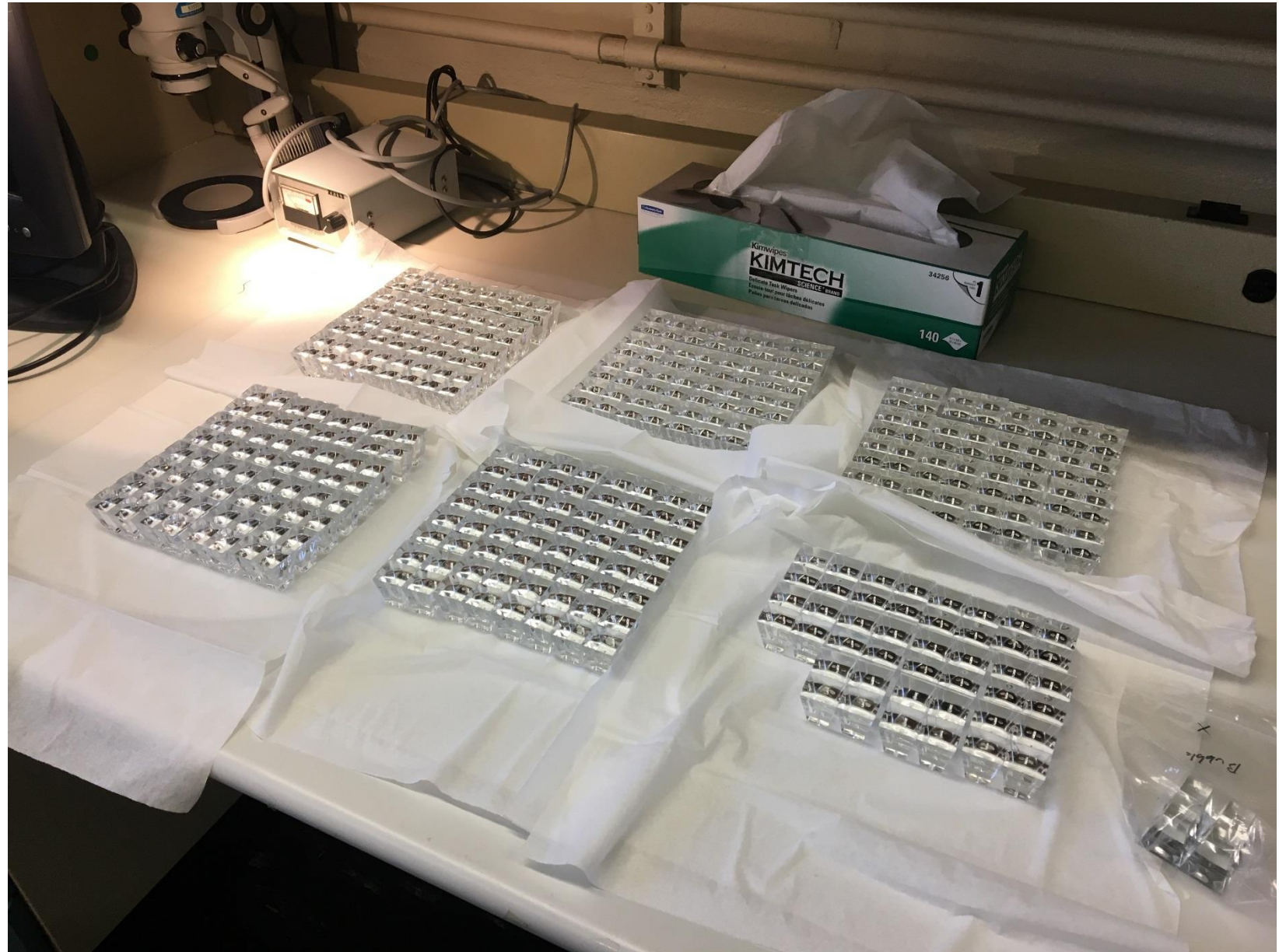
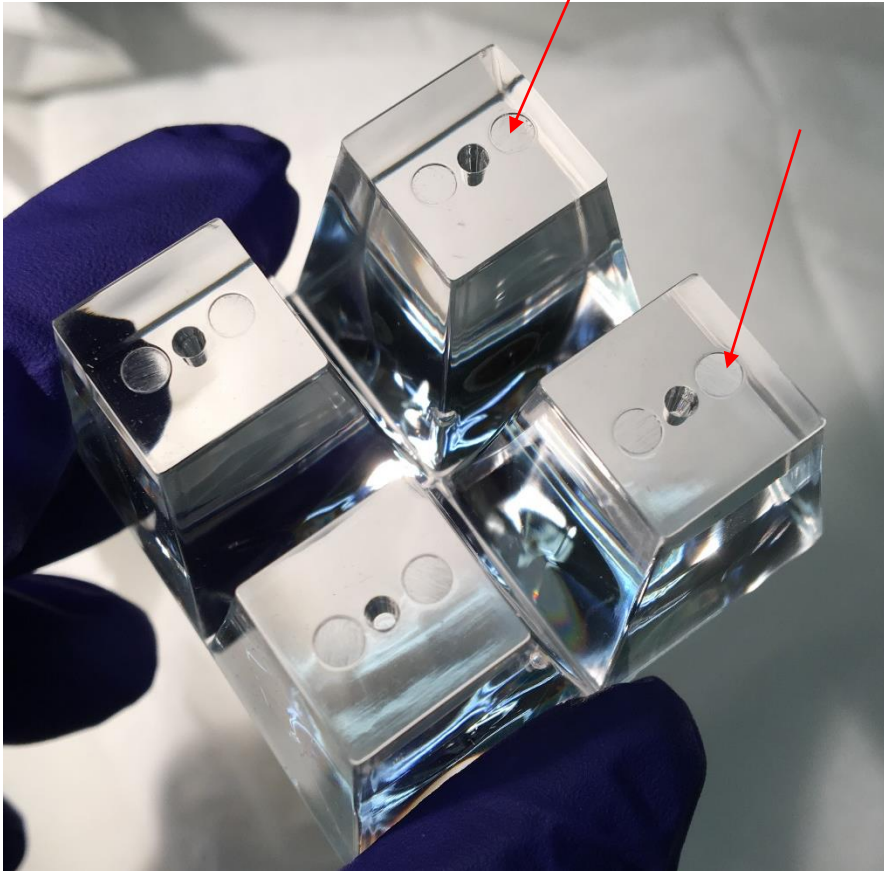


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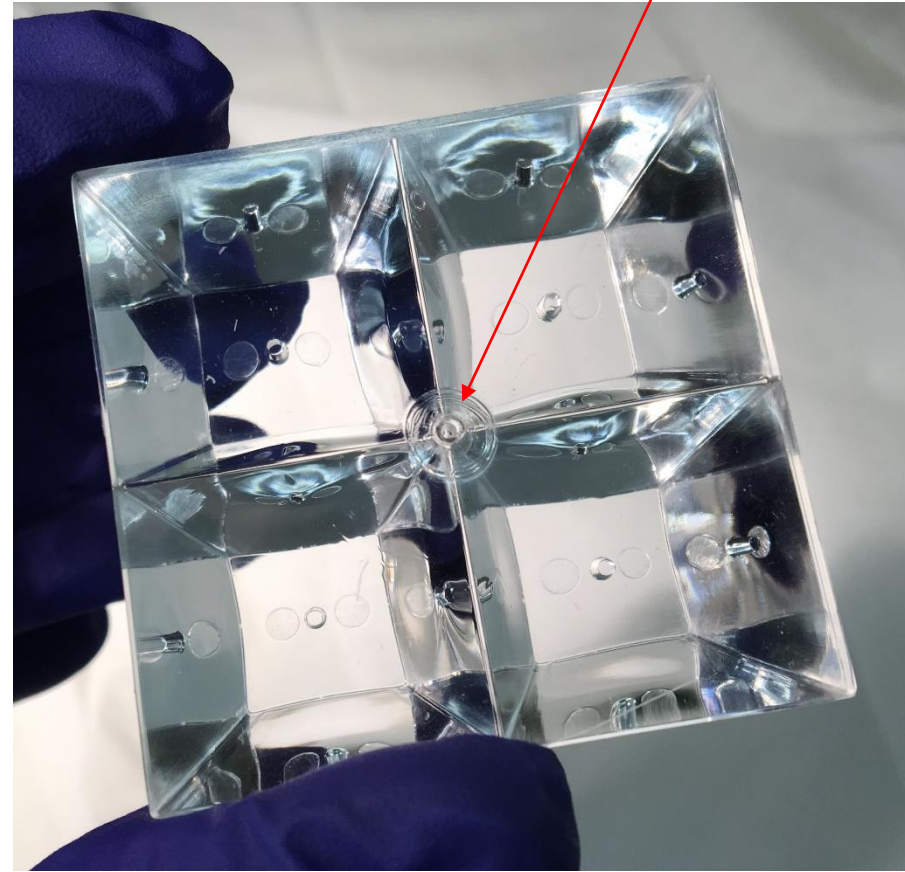
Injection Molded Lightguides Q/A



Markings from mold:

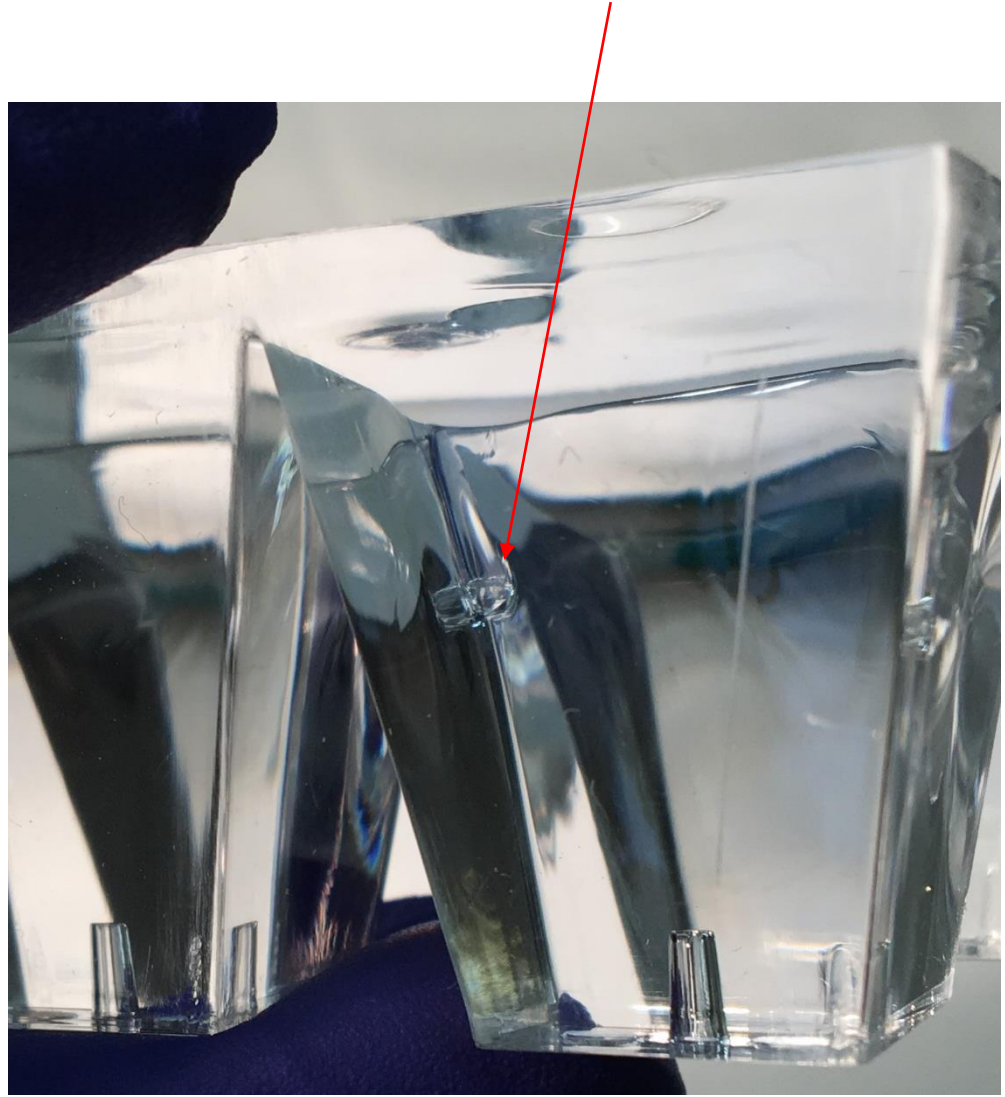
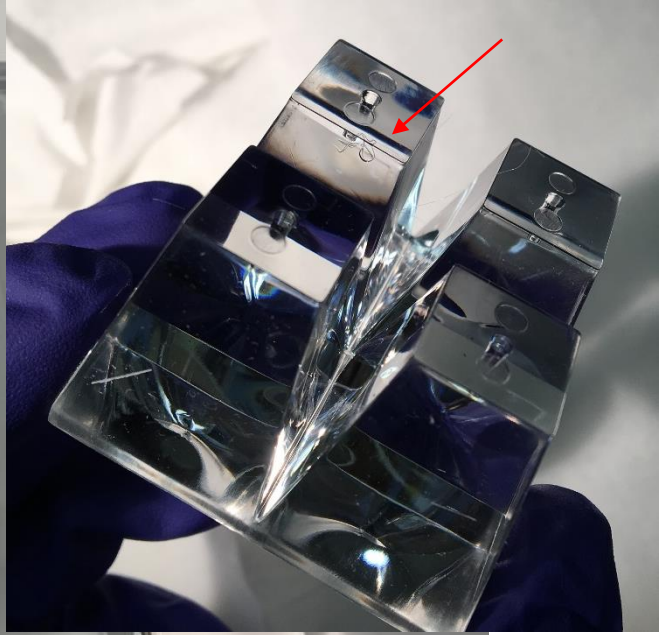


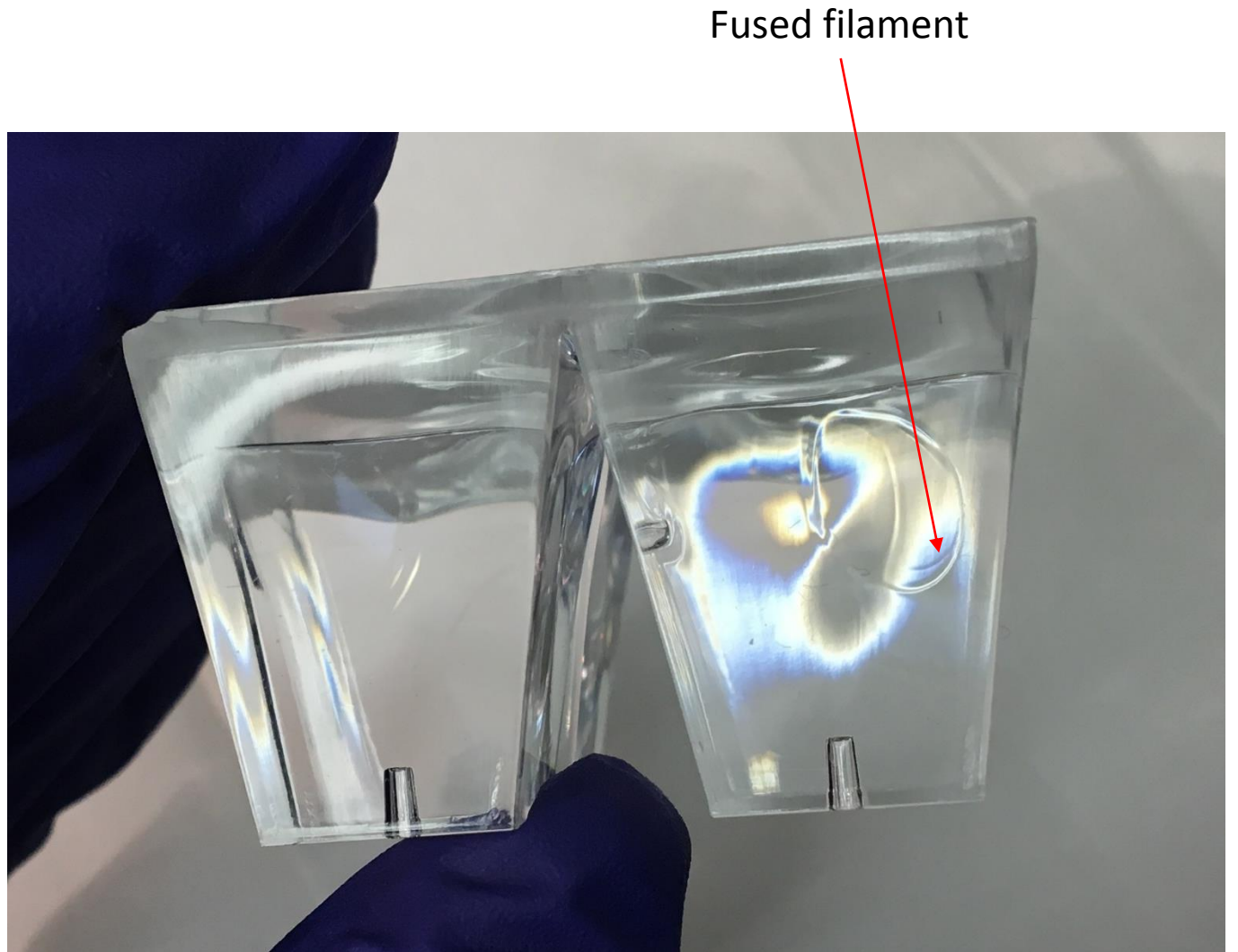
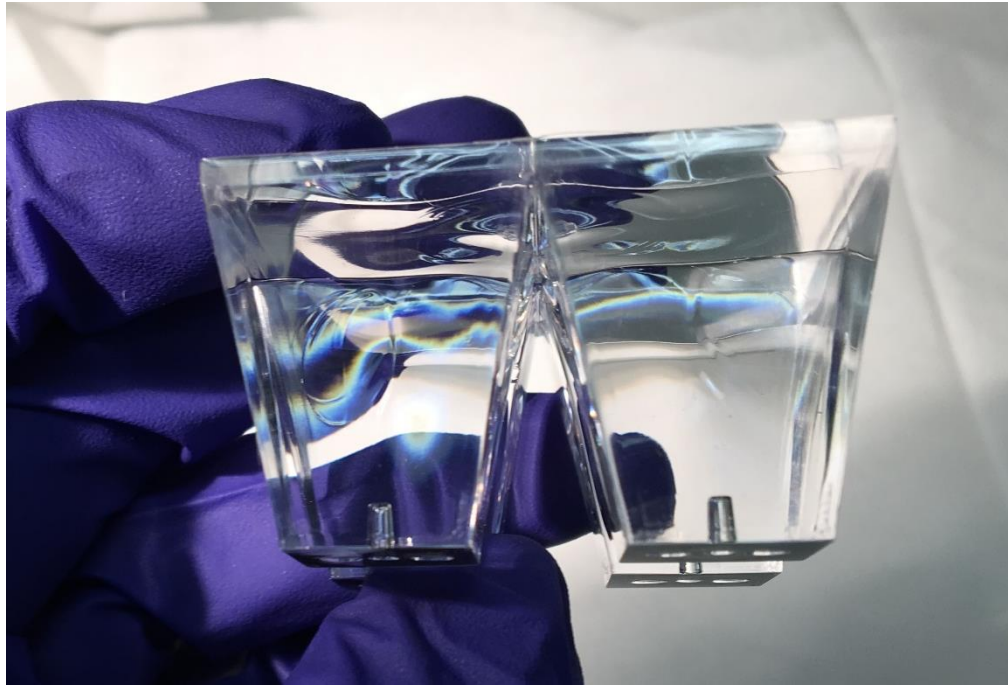
Top: ejection marks

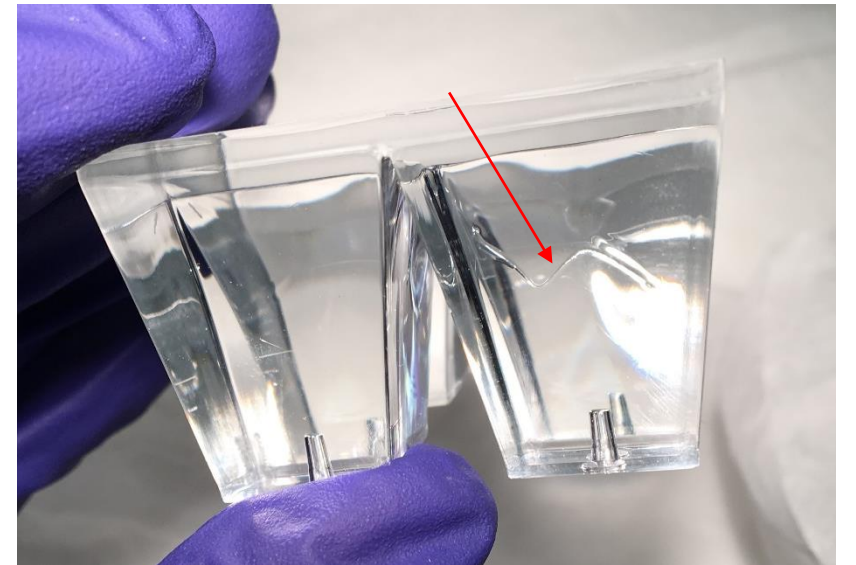
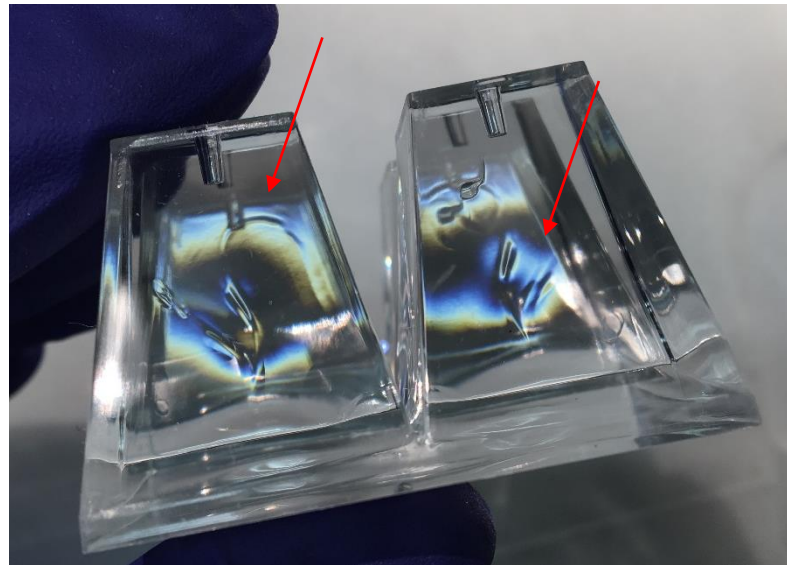
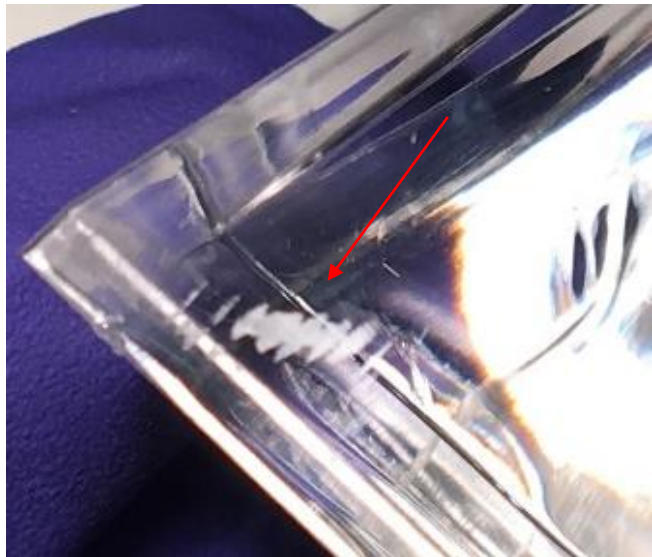
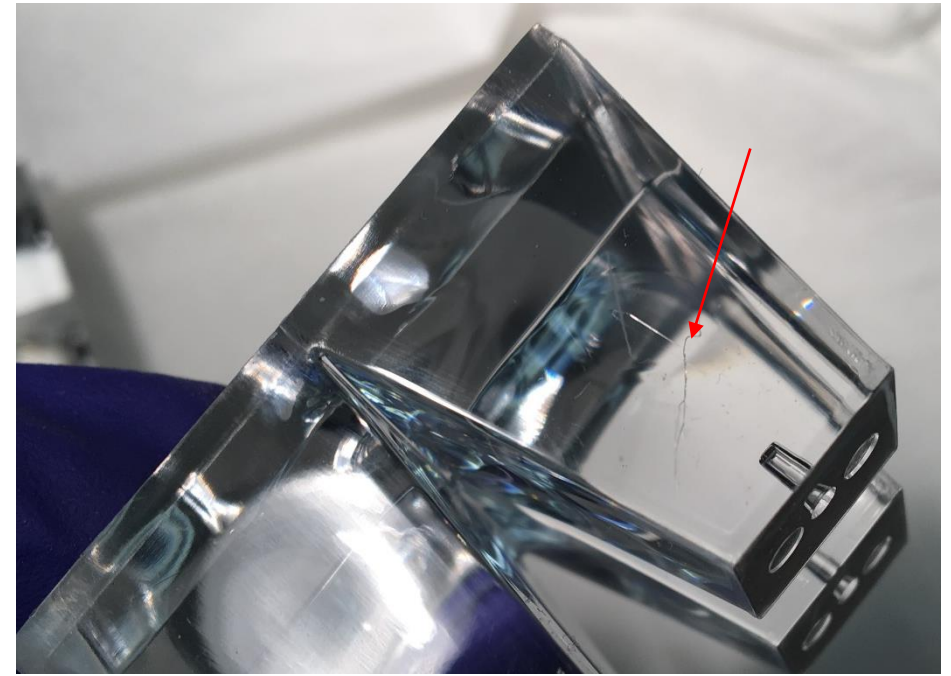
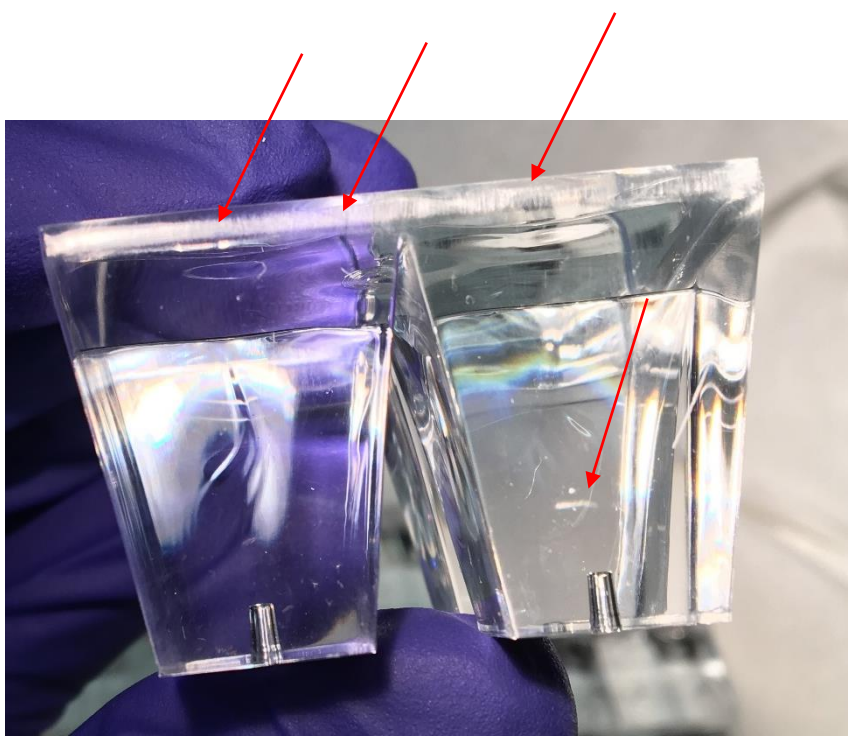


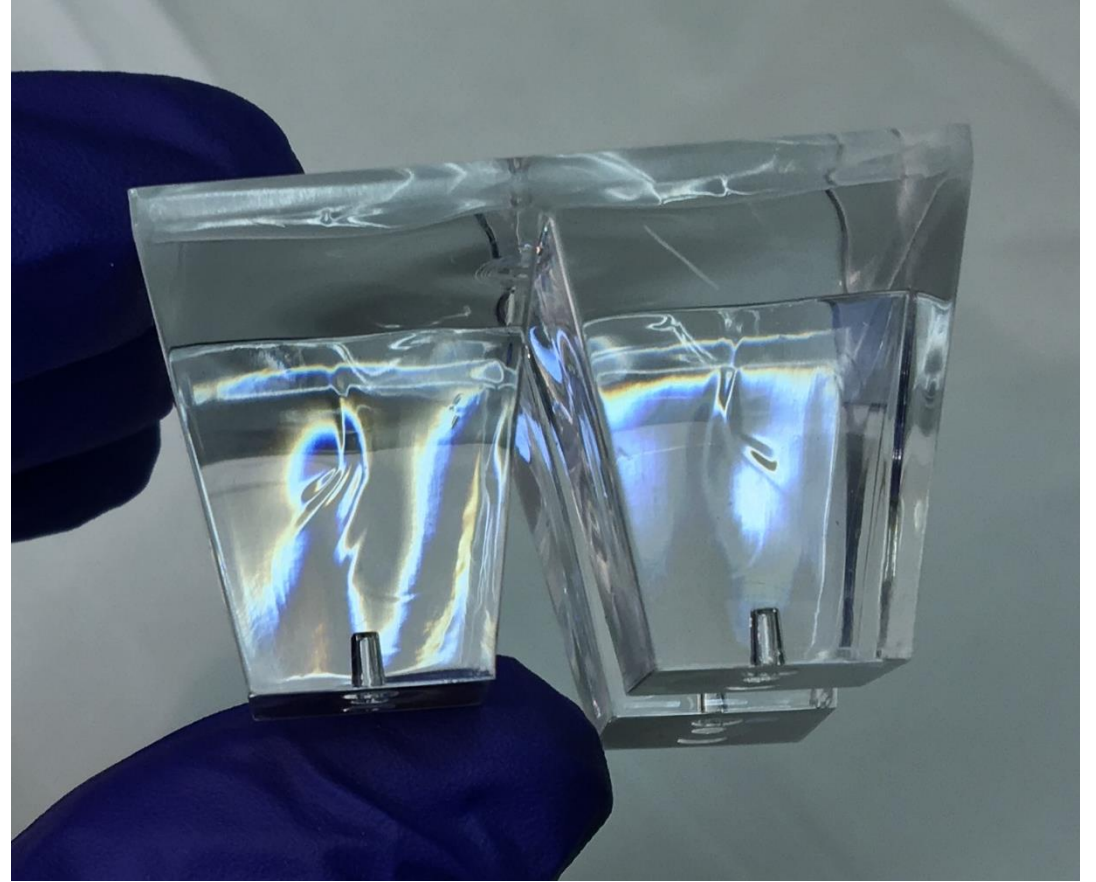
bottom: gate (fill point) mark

Both of these will be machined away when the parallel surfaces are machined and polished.





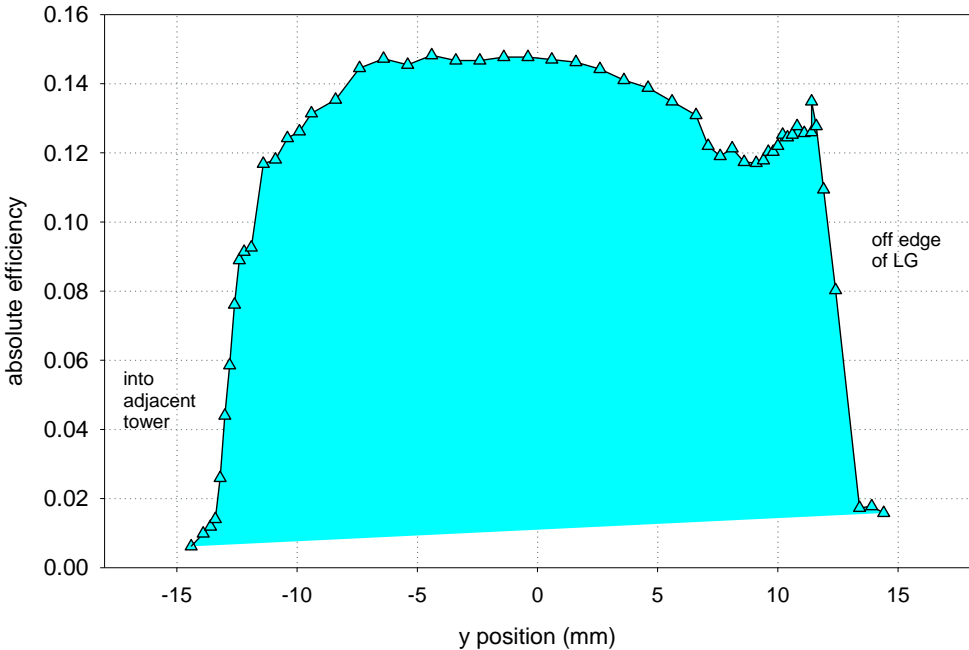
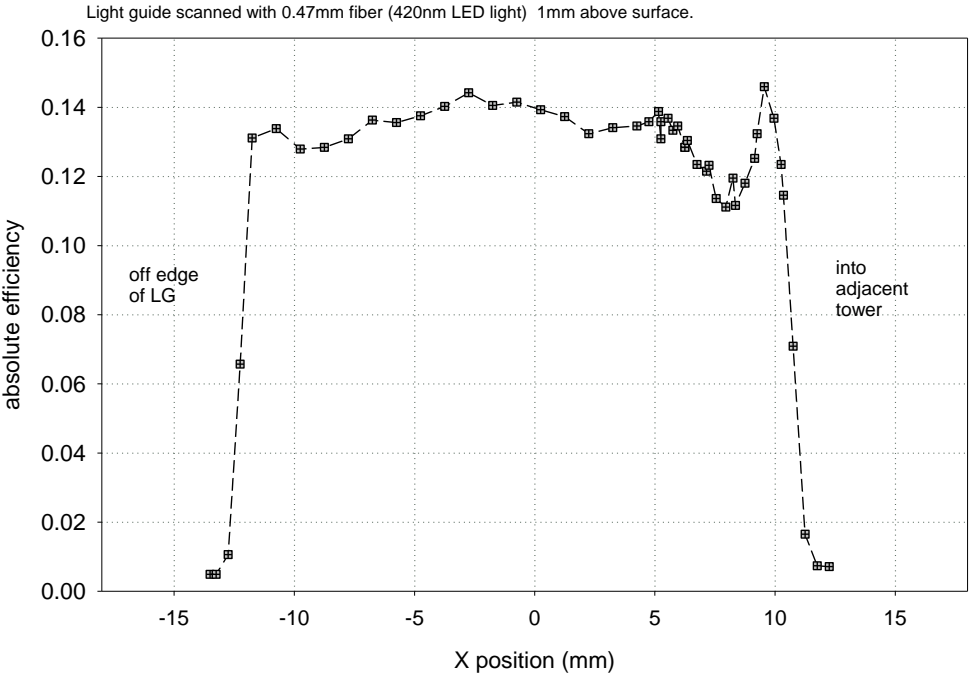
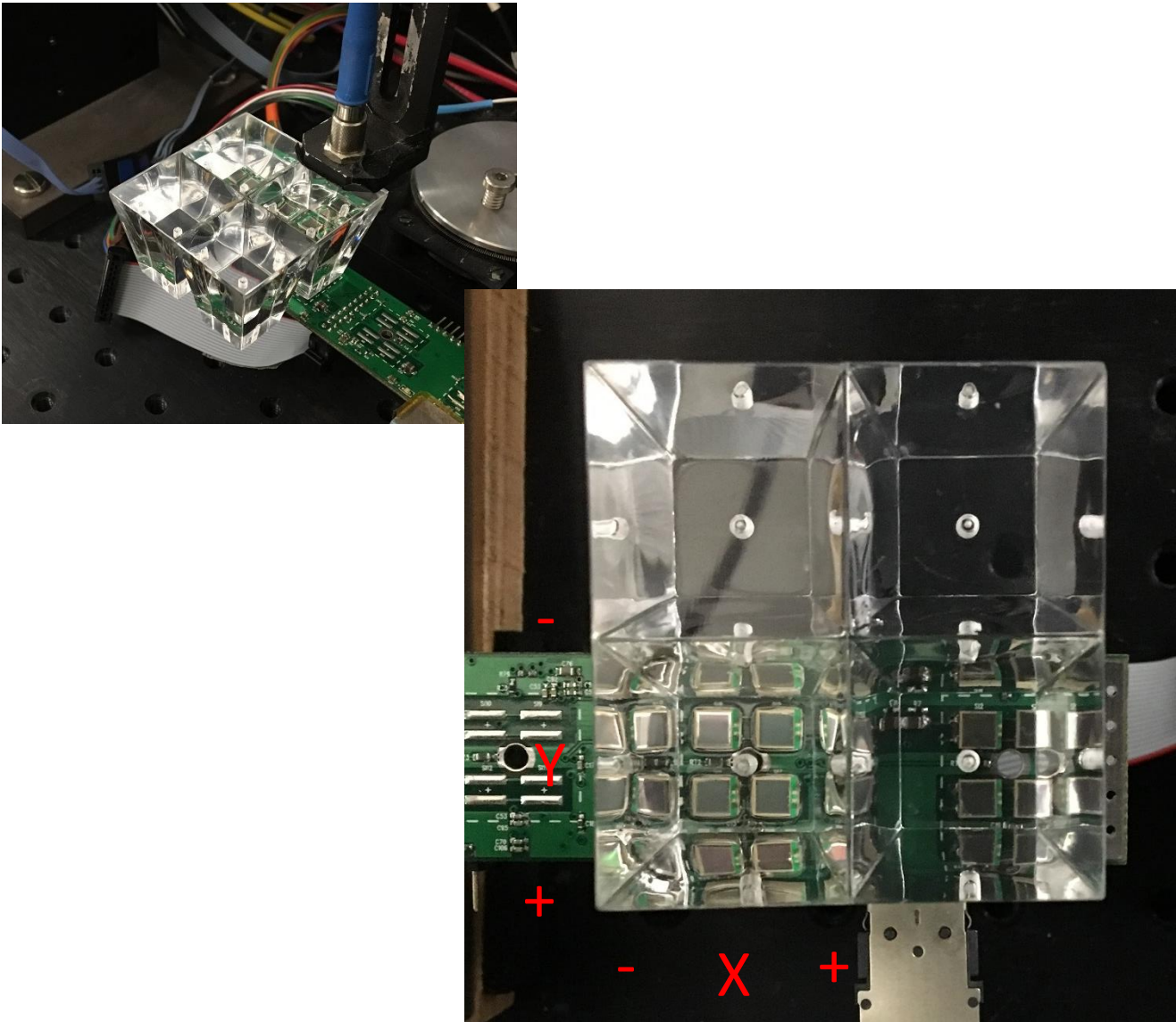


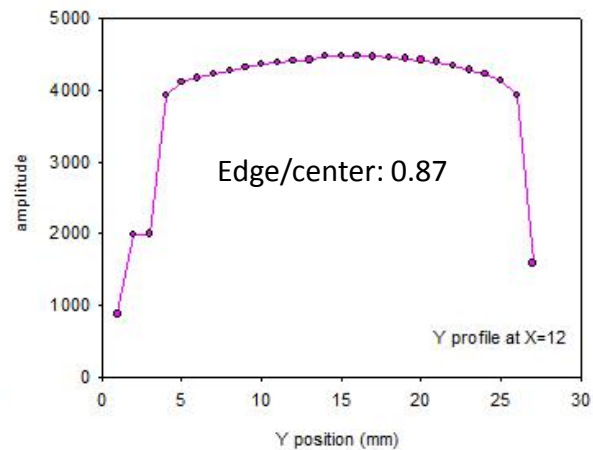
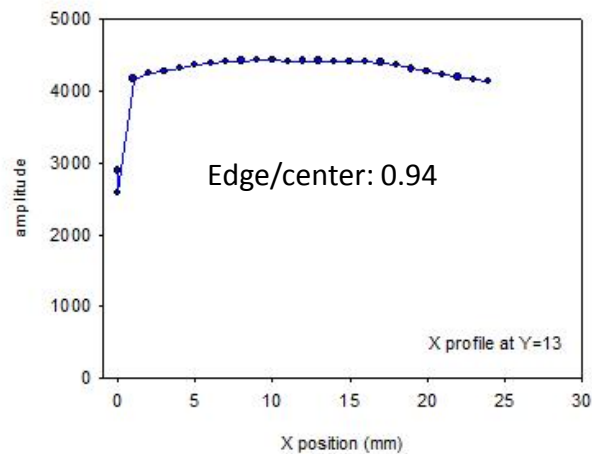




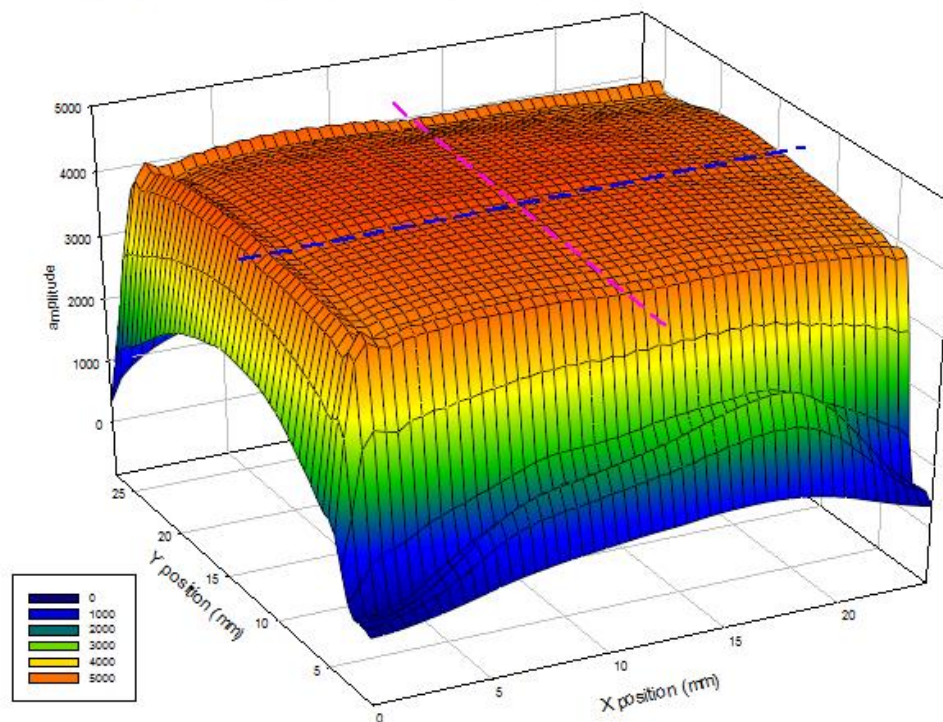
- Noted that many of the pieces have deformed (since arrival?)
- Tapped holes have moved by as much as 1mm, so would not fit with sipm/pcb.
- First 2-3 taken, machined and polished have not deformed significantly
Does machining reduce thermal stress in part?
- ProtoLabs Process engineer and materials engineer say that effect is due to part thickness. Parts this thick may take 2-3 days to set.
- We have ~10 that have been machined and polished for the prototype.
- We considered ordering a second batch of the 1" LG's and then machining them quickly after they arrive. But since we already have enough for ½ of the prototype – it would be more productive to move ahead with the longer version.
- Tentative plan is to order 100 w/ expedited delivery, then machine them quickly once they arrive at BNL.

Uniformity scan of injection molded light guide
Read out with 4 sipms / rtv coupling

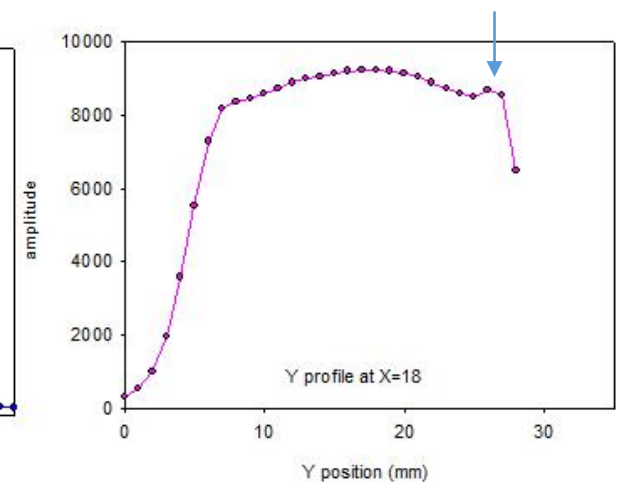
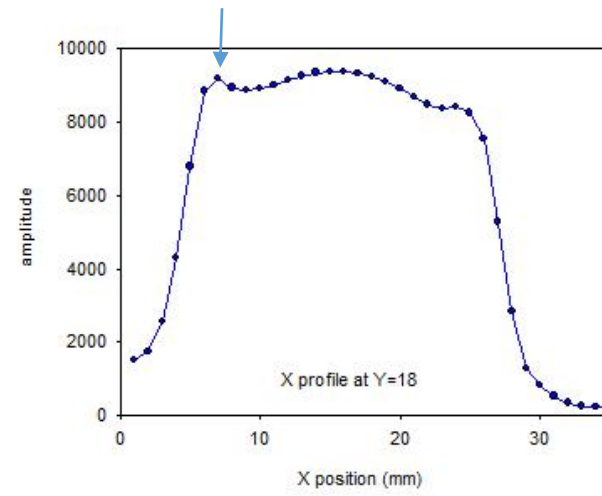
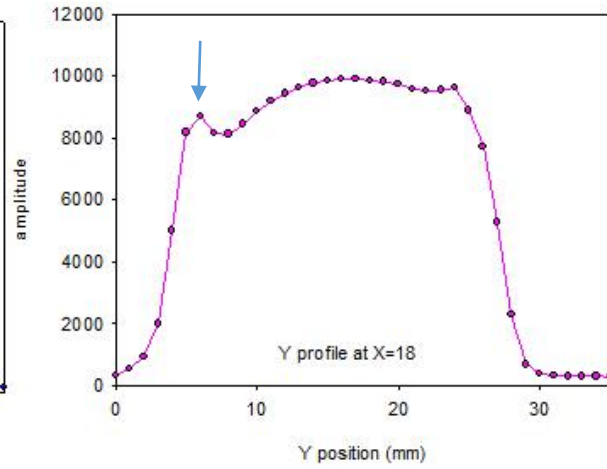
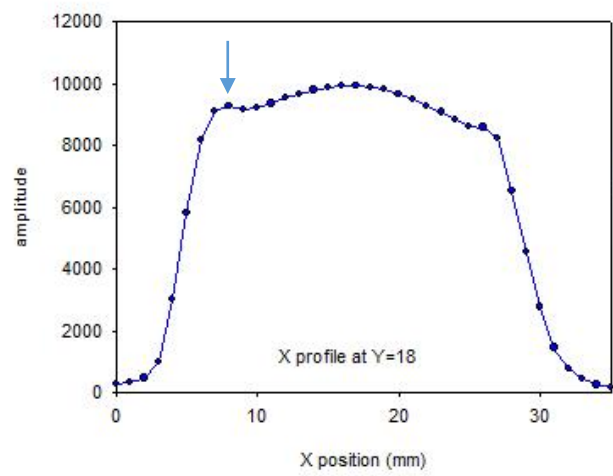




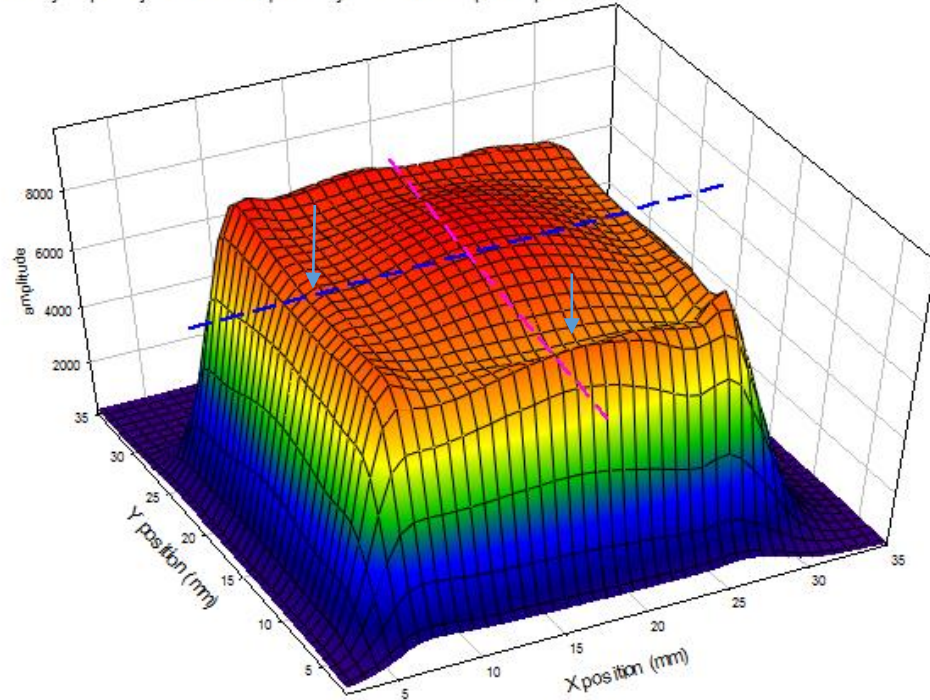
uniformity map of machined acrylic LG (no screw hole) RTV-coupled to pmt



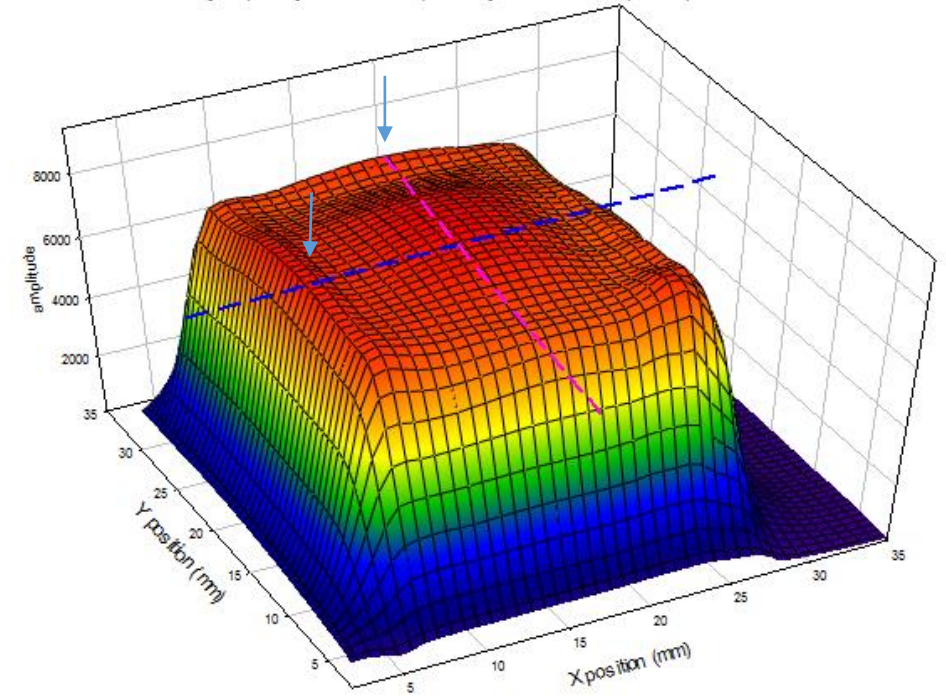
1" machined Acrylic LG
Coupled to pmt with RTV



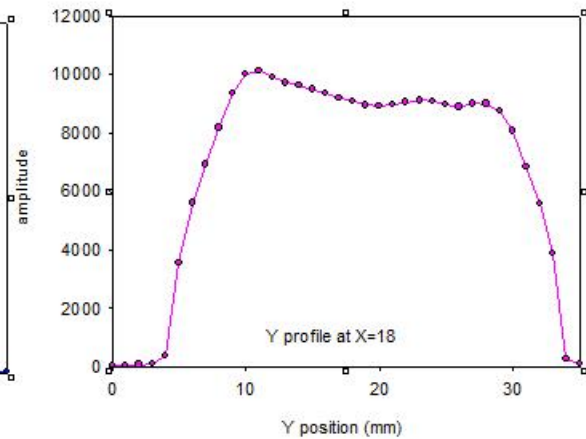
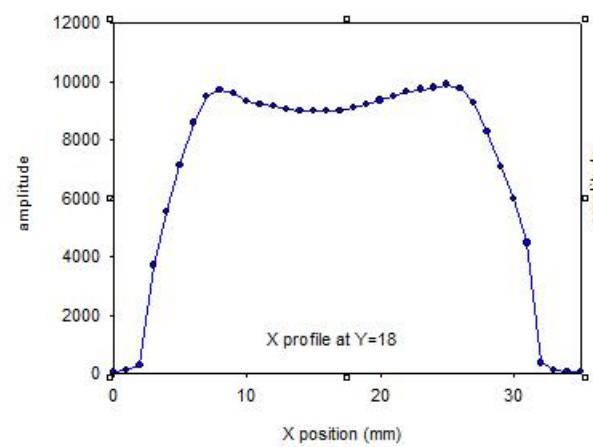
uniformity map of injection molded quad acrylic LG RTV-coupled to pmt



nov02 uniformity map of injection molded quad acrylic LG RTV-coupled to pmt



“cusp” does appear to be due to distortion of LG wall – more pronounced on “interior” sides



nov04 uniformity map of pmt photocathode

